

Environment
Ontario **legacy**

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Canada and Ontario renew Great Lakes Agreement

By signing a revised 1982 Canada-Ontario Agreement on Great Lakes Water Quality, federal Environment Minister John Roberts and Ontario Environment Minister Keith C. Norton not only renewed existing obligations but also directed new efforts at the control of toxic substances and pollution from sources such as urban and agricultural runoff.

"Signing this agreement highlights the high priority Canada places on cleaning up the Great Lakes in recognition of the vital part these waters play in the well-being of seven million Canadians who live in the Great Lake Basin," Mr. Roberts said.

The agreement "formalizes

Ontario's pledge to preserve, maintain and improve, where necessary, the quality of the world's great inland waterway," Mr. Norton said.

Based on the 1976 Canada-Ontario Great Lakes Agreement and on the first co-operative agreement of 1971, the key pollution-control aspects of the revised agreement are:

- **Municipal Sewage Treatment**

The agreement formalizes arrangements made with the Federal Government in October, 1981, to provide a one-time grant of \$65 million over three years for sewage treatment projects in the Great Lakes Basin.

(continued on pg. 3)



Ontario Environment Minister Keith C. Norton and Environment Canada Minister John Roberts face the media after their announcement of the signing of the new Canada-Ontario Great Lakes Agreement.

(photo: H. Kuci)

Environment Ontario streamlines to meet challenges of the 80s

A broad reorganization of the Ontario Ministry of the Environment to meet the environmental challenges of the 1980s was announced by Environment Minister Keith C. Norton.

Mr. Norton summed up the goal of the revitalized ministry: "To achieve and maintain a quality of the environment, including air, water and land, that will protect human health and the ecosystem."

and will contribute to the well-being of the people of Ontario."

The reorganization, which took effect Aug. 3, is the first major reshuffling of ministry responsibilities since regionalization in 1974 to provide better and more direct service to all areas of the province.

A detailed description of the changes and their implications will be published in the next issue of *Legacy*.

Acid rain neutralization study focuses on three lakes

Three Northern Ontario lakes have been selected in the first part of a five-year Experimental Lake Neutralization Project conducted as part of the Acid Precipitation in Ontario Study. They are Ruth Roy Lake in Killarney Provincial Park, Bowland Lake, 68 Km north of Sudbury, and Trout Lake at North Bay.

Ruth Roy and Bowland Lakes are acidic. Trout Lake is non-acidic and will be used as a control for the study lakes.

In a second part of the study, the feasibility of protecting the fish communities of a lake in danger of becoming acidic will be examined.

The project was announced by Environment Minister Keith C. Norton and Natural Resources Minister Alan Pope. "Lake neutralization must be considered as an interim measure to restore lakes already impacted and to protect extremely sensitive lakes from further damage," Mr. Norton said. "We emphasize that neutralization is not a long-term or permanent solution."

Ruth Roy Lake is believed to have supported a healthy lake trout population at one time. It will be treated with slaked lime and limestone in the spring of 1983 and will then be stocked with trout and minnows.

The lake is divided naturally into

two basins. One basin will be neutralized while the other will be left acidic.

During three years of follow-up studies, scientists will determine the effects of their efforts on water chemistry and aquatic life.

Ten lakes on Crown land in the Muskoka-Haliburton area with a fish population threatened by acid rain are being examined for the selection of one of them for the

second part of the project. In addition, some site-specific neutralization experiments will be done on other acidic lakes and on sensitive areas of a lake such as inlet streams and fish spawning shoals.

The study is being done by Booth Aquatic Research Group Inc. and involves the co-operation of the Ontario ministries of the environment and of natural resources.

MOE lab open to visitors

"Science in Action" is the theme of a four-day open house to be held Sept. 22-25 at Environment Ontario's main laboratory on Resources Road, Rexdale, in northwest Metropolitan Toronto.

The open house will be the chief contribution of the Laboratory Services Branch in a series of special events marking the ministry's 10th anniversary. A co-participant is Central Region, with headquarters in Toronto.

Scientists, technicians, administrators and support staff are working through the summer to prepare displays, assign photographs and polish their powers of description for the expected crowds of visitors.

Wednesday, Sept. 22, is the official opening day set aside for en-

Environmental interest groups. Thursday is for groups of high school students. Friday and Saturday are for the general public.

There will be five separate tours available, depending on a visitor's area of interest, each lasting more than an hour. Technical staff will act as tour guides.

In addition to graphic displays throughout the building, there will be displays outdoors of a ministry boat used in Great Lakes research, a mobile laboratory, a van designed to respond to spills and the mobile Trace Atmospheric Gas Analyzer (TAGA 3000).

Co-ordinator of the event is Darka Migus of the lab's water quality section. Visiting hours are 9 a.m. to 4 p.m.. For further information call (416) 248-3512.

It's all one world...

"Acid rain may kill many trees"

Acid rain may shorten the lives of trees from about 100 to 30 or 50 years and may kill many trees suddenly when soil acidity reaches a certain level, Bernard Ulrich, biologist at the West German University of Goettingen, told an international meeting on acid rain held in Stockholm.

A further discussion of this claim with Professor Ulrich persuaded British researchers and civil servants that this diagnosis is correct, reports New Scientist. The Britons returned from Stockholm convinced that their attempts to reforest some areas failed because of acid rain and that acid rain does in southern woodlands in south-east England and in upland conifer plantations. They are also determined to press for more money to study the effects of airborne sulphur on soil and vegetation.

forest suffered from sulphur

Professor Ulrich's research is the first to present evidence that acidic pollution affects not only aquatic, but also terrestrial life. Acid rain, he says, leaches nutrients from soil and releases toxic elements such as aluminum.

Suitably impressed, the West Germans promised to reduce their sulphur emissions by 50 per cent by 1985.

In its final report, the Stockholm conference stated that one million hectares of forest in central Europe have suffered damage by sulphur in the form of gas, acid rain and

particles. The assistant director of the Institute of Terrestrial Ecology, Fred Last, believes that the area of affected forest is nearer to 2 million hectares.

Swedish experts tried at the conference to achieve a general acceptance of a maximum limit for sulphur deposits throughout Europe of 0.5 grammes per square metre per year; they did not succeed. Critics of this proposal pointed out that such a limit would demand an impossible reduction of sulphur emissions by 80 per cent.

maximum limit: 0.5 gr/m² /year

The final report pointed out that lakes in sensitive areas have generally not been acidified if they received sulphur loads of 0.5 gr/m² /year or less.

The often-heard criticism that there is no scientifically established link between sulphur emissions and acid rain lost much support in Stockholm, although everybody agreed that many questions still remain unanswered.

A representative of the Swedish Environmental Protection Board managed to express the general attitude toward the lack of knowledge on acid rain effects by a comparison with meteorology.

"How would you feel," he said, "if a weather forecaster would announce that he could not predict tomorrow's weather until he had done more research. You'd expect him to tell you what he thinks will happen if he is not absolutely sure."

A bone disease, traced to cadmium pollution of soil in Japan, was not found in Shipham, although Shipham soil had a 10 times higher cadmium level than the level found in Toyama, Japan.

Cadmium contamination of the soil has been caused by a zinc mine in the area, closed 100 years ago after three centuries of operation.

All the reports of acid rain victims did not change the attitude of the U.S. delegation, headed by Kathleen Bennett of the Environmental Protection Agency. In a post-conference press statement, Mrs. Bennett said that the current levelling off in SO₂ emissions from U.S. power stations is an important advance. To go further would be unsupportable, because scientists cannot yet tell where and when to reduce emissions by how much. More action may only be justified, she said, when scientists can demonstrate that a given cut in emissions will bring about a clear reduction in the acidification of lakes and soils.

The U.S. delegates also suggested that scientists establish

thresholds for every threatened area so that emission standards could be adjusted accordingly.

One of the more positive notes was introduced to the conference by Quebec environment minister

Quebec has "miracle cure"

Marcel Leger, who announced a "miracle cure" under development by the provincially-owned Société Nationale de l'Amiante. The company, in co-operation with Noranda Mines Ltd., has shown that sulphur dioxide can be combined with asbestos dust to produce magnesium sulphate, a useful fertilizer.

Once the process is fully developed it may convert damaging emissions into a useful raw material. A Noranda representative was less optimistic. He said the feasibility of the system will depend on its capital and operating costs.

After everything was said and done, however, the New Scientist points out that little was heard from Eastern Europe.

There is "devastating evidence" emerging about the damage eastern European countries are doing to each other and to their neighbors. The Soviet Union is still the world's biggest sulphur polluter. It stayed out of the controversy by not turning up at the Stockholm conference.

Clean water is not enough

Changing the habits of people is as important in the fight against waterborne diseases as the provision of piped clean water to Third World villages, India's National Environmental Engineering Research Institute found after a study of 83 villages in 11 states.

The institute found no difference in the health of people who used piped water and of people who used wells, ponds and streams. The piped water was bacteria-free at the tap, but became contaminated while it was stored in household vessels.

The institute concludes that piped water alone cannot do the job. The users must also be educated in its use.

Britain cuts funds for air pollution research

Britain's research into the effect of fluorocarbons on the ozone layer, the effects of sulphur dioxide on crops, forest and health and the monitoring of air pollution will be severely curtailed as a result of cuts in spending by that country's Department of the Environment, reports New Scientist.

PBBs in Michigan

The blood and tissue of 97 per cent of the population of Michigan is contaminated by PBBs, claim researchers of the Mount Sinai School of Medicine. PBBs are

toxic and carcinogenic chemicals once used in fire retardants.

The cause of the contamination was an accident in 1973 in which PBBs were mixed into dairy cattle feed. Farmers, who use a good part of their own products, showed the highest concentrations in their systems and may show higher rates of cancer during the next 20 to 30 years, the report states.

Some bees love DDT

A species of bee that thrives on DDT has been detected in Brazil. The bees collect the pesticide from inside walls of houses where it is sprayed to control malaria-carrying mosquitoes. Researchers of the U.S. Army Environmental Hygiene Agency found that the bees do not suffer ill effects despite an average concentration of 2039 micrograms of DDT in their bodies. Honey bees are killed by concentrations of 6 milligrams of DDT.

The bee seems to like the pesticide because it is chemically similar to a substance their body converts into a sex pheromone. The species has another distinction: it does not sting.

Re-refinery on stream

Lubrimax Inc., Quebec's first industrial oil re-refinery, has started operations in St. Lazare, 65 Km west of Montreal. The plant can process seven million litres of industrial used oils, among them

hydraulic, cutting, turbine, insulating and rolling oils, and gear lubricants. The yield of refined oil is usually about 90 per cent.

"PCBs not carcinogenic"

"In spite of 50 years of use, no causal relationship has been established between PCBs and any specific type of cancer, nor has it been proven that the incidence of cancer mortality has increased," reports a study of the U.S. Chemical Manufacturers Association.

According to this study, PCBs have at most a weak promoting activity for cancer and present only slight mutagenic and reproductive risks. Except for reversible cases of dermatitis (skin infection) and chloracne, no adverse health effects were found.

Deadly pesticides

At least 375,000 people are poisoned by pesticides in the Third World every year, and about 10,000 of them die, reports the Pesticides Action Network, formed by 16 countries to campaign against misuses of pesticides.

An even greater tragedy is the "pesticide treadmill," says PAN. The indiscriminate use of pesticides results in pests developing resistance or new pests becoming dominant, causing losses of entire crops.

Cadmium has no effect

Contamination of garden soil by a cadmium level 200 times the national average had no effect on mortality in the village of Shipham in Somerset, England, scientists of the London School of Hygiene found after a two-year study. The death rates during the past 40 years in the village and in a comparable but unpolluted village were well below the national average.

Hazardous substances seminar

Environment Ontario and the Pollution Control Association of Ontario are sponsoring a seminar on hazardous substances (toxic chemicals, priority pollutants) in waste-waters and their removal in wastewater treatment processes. The seminar will be held on Nov. 3 at the Ministry of Health laboratories on Resources Road in Toronto.

Topics include Ontario's response to water quality problems in the Niagara River and projections for future hazardous substances

control requirements in Ontario. The results of monitoring programs at several municipal wastewater treatment plants will also be presented.

The cost of designing and operating treatment systems for the removal of hazardous substances will be discussed with reference to the Niagara Falls, New York, wastewater treatment plant.

For further information, contact Mrs. S. Davey, PCAO, P.O. Box 790, Oak Ridge, Ontario, L0G 1P0, Telephone (416) 773-4124.

Dr. Parrott joins Human Rights Commission

Premier William Davis has appointed Dr. Harry Parrott a member of the Ontario Human Rights Commission.

Dr. Parrott, Ontario environment minister from August, 1978, to April, 1981, has re-established his practice of dentistry in Woodstock after his retirement from politics.

His appointment to the human rights commission is for three years.



Ministry
of the
Environment
Ontario

Hon. Keith C. Norton, O.C.
Minister
Gérard J.M. Raymond
Deputy Minister

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Students study activated sludge process

by Susan Watson

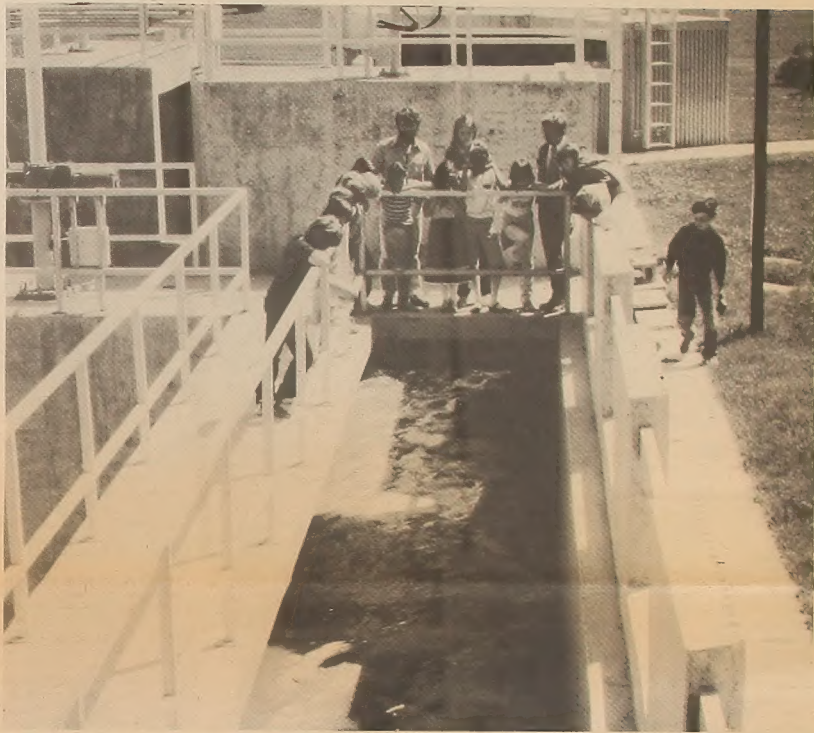
When the winners of the "Give a Hoot and Don't Pollute" coloring contest held for the fourth-grade students of St. Francis Xavier School, Brampton, were offered a choice between a tour of a sewage treatment plant or a resource recovery centre they chose the treatment plant. Consequently, in mid-June they traveled across Toronto to tour the Duffin Creek Water Pollution Control Plant.

Tour guides Dave West and Ron Motum split the class in half. Starting from the model displayed in the lobby of the administration building, the two groups observed each stage of the activated sludge sewage treatment process from the entrance of sewage to the plant to the final discharge of chlorinated water to Lake Ontario.

The students learned that the Duffin Creek plant is part of the York-Durham project. Once completed, the project will form the largest service system ever constructed by the Ontario Ministry of the Environment.

A good rapport evolved between Dave West and the group he showed around the plant. "What would happen if you didn't have any air?" he asked, hoping to illustrate aerobic bacteria's need for oxygen. "You'd turn red!" was a hopeful suggestion.

The children were constantly active, gathering around models, peering into microscopes, filing through hallways, gazing into settling tanks and firing a never-ending stream of questions as they made their way around the plant. The morning concluded with lunch in the plant boardroom and distribution of "Keep Ontario Beautiful" buttons.



Grade 4 students of St. Francis Xavier school start the plant tour at the basin into which sewage is lifted by screw-pumps to be conveyed by gravity through the treatment process.

(photo: Susan Watson)

Canada-Ontario agreement... (continued from pg. 1)

• Industrial Waste Control

By December, 1983, major Ontario industrial projects, already under way, must comply with agreement objectives for water-carried industrial wastes, including sources of hazardous and toxic substances, thermal and radioactive wastes.

• Land Use Activities

In accord with International Joint Commission recommendations of 1980, Canada and Ontario agree to undertake measures for control of pollution from pest control products, animal wastes, the handling and disposal of liquid and solid wastes, control of soil losses and efforts to encourage improved land use.

Continuation of the phosphorus-control program, started in 1971 and authorized under the 1972 Great Lakes Agreement, is re-authorized by the 1982 agreement pending the completion of a further specific phosphorus-control agreement.

• Shipping

Measures for the control of pollution from commercial shipping and pleasure craft are continued.

• Dredging Activities

Co-operative efforts to identify and preserve significant wetland areas of the Great Lakes Basin will begin.

Previous obligations for the control of pollution from dredging activities are continued, including the implementation of criteria developed by the Water Quality Board of the International Joint Commission.

• Offshore and Onshore Facilities

Renewal of existing obligations is directed at the following areas:

- Land transportation, including rail and road
- Pipelines on land and submerged under water
- Offshore drilling rigs and wells
- Storage facilities onshore and offshore

— Wharves and terminals with pipeway connections to land and offshore structures used for handling oil and hazardous polluting substances.

• Persistent Toxic Substances

Initiation of inventory, assessment, control and research programs for long-lived substances found in water.

• Surveillance

Canada will continue to share the cost of Ontario's Great Lakes surveillance program, which, through surveillance and assessment of municipal and industrial waste discharges and effects of tributaries discharging to the boundary waters, determines trends in nearshore water quality and the effectiveness of remedial measures.

• Research

Established under the Canada-Ontario Agreement, the Board of Review assesses research needs and reports annually on the undertaking of new projects, as required.

• Niagara River Program

In a separate but related activity, Environment Ontario has accelerated its abatement and containment measures to address one of our most pressing environmental priorities, the Niagara River. Concern over the effects of metals and organic chemicals leaching from U.S. chemical waste sites has initiated extensive investigation, studies, and monitoring of suspected U.S. sources of contamination, such as the Love Canal and Hyde Park sites.

Through intervention in U.S. Government hearings and active participation in the U.S.-Canada Niagara River Toxics Committee, Ontario is pressing for abatement and containment of U.S. pollution sources as well as the continuing development of long-range hazardous contaminant control plans to protect the environmental integrity of the Niagara River, and in turn the Great Lakes.

Environment Ontario has established the Niagara River Improvement Team to spearhead its Niagara River programs. With the aid of independent geologic testing consultants, the team co-ordinates

Ontario's efforts to ensure action on both sides of the border to protect the water quality of the Niagara River. The team also works co-operatively with such agencies as Environment Canada, the Department of Environmental Conservation in New York State, and the U.S. Environmental Protection Agency.

Environment Canada, through its Environmental Protection Service and Inland Waters Directorate, with the support of Fisheries and Oceans Canada, will continue comprehensive surveillance and scientific surveys of the water quality of the Niagara River and Lake Ontario. These efforts will monitor the effectiveness of clean-up efforts of pollution sources to the Niagara River. In addition, Environment Canada continues to provide technical advice to citizens' groups which have intervened in U.S. courts to press for clean-up efforts.

Environment Canada continues to consult with the U.S. Environmental Protection Agency and the New York Department of Environmental Conservation on the implementation of U.S. remedial measures for the U.S. sources to the river.

"Pitch-In" 1982

The youth enthusiasm is conta



Girl Guides help clean up part of the Bruce hiking trail near Hamilton as part of "Pitch-In" week.

The people of Ontario like their environment clean. Proof of this was found in their enthusiastic participation in "Pitch-In" week, organized during the second week in May by the Federation of Anglers and Hunters across Canada. In Ontario, the efforts were supported by Environment Ontario.

This time, members of 1,276 Ontario groups and organizations provided volunteers for the effort to rid parks, trails, playgrounds, highways and other sites of litter. That was about double the number of participants registered at the first "Pitch-In" two years ago.

Shell Canada provided 100,000 plastic garbage bags to the litter hunters and local supporters helped with transportation, lunches and refreshments.

The time for "Pitch-In" 1982 was well chosen. Vegetation was not yet dense enough to hide the "quarry" and the hordes of mosquitoes that had hampered previous efforts had not yet come out of hiding.

All over the province individual organizations mounted special efforts. In Kingston, for example, Ken Keyes, principal of Calvin Public School, organized his students to clean up a section of the Rideau Trail and the area surrounding the Olympic harbor. Special classes cleaned the school ground itself, while other students concentrated their efforts on a senior citizen complex.

In Portland, Stan Haskin of the local Boy Scouts group sent his troops to clean up the shores of Big Rideau Lake and in Smiths Falls, Ron Lyon and his Scouts concentrated their effort on "Longbush Road" — a historic stretch of narrow, tree-shaded highway that now leads from nowhere to nowhere else and has yet managed to preserve the charm of old country roads.

The enthusiasm the young people brought to the job proved to be contagious and in many places the older generations joined in the effort to combine a useful job with a good amount of fun and merriment.

Sudbury district residents were busy May 10-16 as students, Scouts, clubs and associations set out to combat litter.

It took just two hours for 32 Grade 5 students to collect about 200 bags of garbage in Hamner.

The students were members of the Outdoor Study Group at Valley View Public School, Val Caron.

Supervised by Richard Gaville, study group coordinator, and Valley View teacher Mr. Hepper, the group was not to send all garbage to a landfill site. Evidence against illegal garbage dumpers was saved. An addressed postcard became incriminating when noticed amidst a pile of rubbish.

At St. Francis Separate School in Sudbury, "Pitch-In" is a fa-

...from cans to washing mach

About 150 people were out cleaning in the Joel Lake, Nelson Lake and Poutine Road areas in Sudbury the last day of "Pitch-In" week. Members of the Trailmen Rod and Gun Club, Junior Trailmen Conservation Club, First Val Caron Scouts, Northland Fly-fishing Association and Notre Dame de Rosaire School all co-operated to get the job done.

Every type of garbage from pop cans to washing machines and car parts was collected. Using a one-ton truck, half-ton trucks and personal vehicles, about 1,000 bags of garbage finally made it to the landfill site. In 1980, 1,800 bags of garbage were collected from the same area.

"It really irks me to see areas that were cleaned up in 1980 that have to be cleaned up again this year," said Jerry Coutemanche, Zone 2 chairman of the Ontario Federation of Anglers and Hunters.

Members of the Creighton-Lively Conservation Club felt the same that day as they retraced their steps of two years ago to clean the Vermillion River watershed and the Lower Pumphouse Road behind Creighton Mines. A dozen club members and 28 youngsters

removed eight half-ton truck loads and three 3-ton truck loads of garbage.

"Two areas in particular were in very bad condition and another, because of the scrap steel and sharp metal (old cars and truck boxes), we could not even touch without a loader, and a coupled tandem

Get involved —

"When the children started cleaning, the rest of the community got involved too," said Marlene Maneau, principal of 32 pre-kindergarten to Grade 8 students at the Mattagami Indian Reserve Day School about 135 miles north of Sudbury.

"Get involved and work together" was the motto for "Pitch-In" week at the reserve. Mrs. Maneau and teacher Mrs. Helena Flett ordered free garbage bags for the children to use during clean-up. Using their own garbage bags, citizens joined in the cleaning and also made donations to the children for their work. Approximately \$30 had been contributed by the end of



Jo-Anne Naveau was all smiles and giggles as she proudly displayed her certificate of merit for a hearty clean-up effort.



Pat Benetcau is freshening up a trail sign on the Bruce Trail.

tagious

miliar ritual. Every school day since the end of March, a few Grade 7 and 8 students have taken "Pitch-In" bags and scoured the school yard for litter as part of their phys. ed. period. About 600 students had participated in the program by the end of the school year.

"Pitch-In bags seem to make a difference to the students," said Paul Mailloux, vice-principal. "Garbage pick-up becomes a project rather than a chore."

achines...

truck," said Patrick Petus, secretary-treasurer of the Creighton-Lively Conservation Club.

"Everyone present worked diligently to clean up the needless array of garbage that some ignorant and intolerable few insist on dumping along the edge of a beautiful wilderness."

- work together

the week to be used for a school trip to Owen Sound.

The reserve's five-man fire crew also helped in cleaning and transporting garbage to a landfill site.

Clean-up efforts are important to the reserve people. With no regular garbage pick-up, the reserve becomes cluttered during winter and early spring. However, by the end of "Pitch-In" week, it was immaculate. "The reserve is one of the cleanest I've ever seen," said Mrs. Maneau, who has lived there for eight years.

As an extra reward for their efforts, the children were presented with certificates of merit by Band Chief Margaret Naveau.



Roly Bird, Mayor of Burlington, found the "Pitch-In" enthusiasm of Pathfinders contagious — as did many other participating adults.



Team work got even the heaviest loads on to the truck and off to the dump at the Mattagami Indian Reserve.



After a morning of hard work, this little girl satisfied a big thirst during an outdoor lunch for clean-up volunteers in the Sudbury District.

Source separation: It can happen here!

Stories by
Jim Robinson

Reprinted from The Canadian Champion,
Milton, January 21, 1981

A reliable statistic on waste production in Halton Region states the 15 major daily and weekly newspapers circulated here product 11,312 tons of old newsprint a year.

That is a 1979 figure which, when using federal government formulae, is more accurately pegged at 11,617 tons of old newsprint per year distributed in Halton and thrown out with the trash.

That is equal to 23,234,000 pounds of paper, or the weight of 7,749 average-size North American cars.

The current price being paid for old newsprint which is baled and delivered to a buyer is \$55 per ton. If every ton from Halton were retrieved it would result in a windfall of \$638,935.

That gives some idea of the money that does exist in the source separation-secondary materials market.

If a Milton resident could collect one ton of computer tab (manilla) paper and deliver it baled to a used paper buyer, he would be paid \$275 for his efforts. A ton of baled white ledger paper, would be purchased for \$175. A full cord (4x8x8 feet of old wood) will net between \$125 and \$175.

Clearly there is money in source separation and the technology to generate even more money is in a threshold position.

That is the reason Halton Region is seriously looking at a program of asking residents to set aside glass and paper products. With very slight opposition to any more landfill operations, Halton has to find a method of disposing of waste and it

appears source separation may hold the hint of an answer.

The state of the art today in source separation and resource recovery is not unlike the automobile industry at the turn of this century.

While everyone is agreed on the basics, such as a car must have wheels and an engine and recoverable waste must be separated; after that there are as many divergences of opinion as there are individuals involved.

Luckily much study has been done on the results of many programs involved in resource recovery and a few salient points on how a program should function have emerged. These points are:

1. Close cooperation between at source recovery program operators, municipal officials and waste managers is a key.

While both municipal and private operations can succeed, the program should be designed to fit effectively with the existing waste management system and there should be municipal support and guidance.

2. While achievement of a particular return on investment is not critical, it is imperative that business-like standards be used in the design and operation of the system. Programs, which have depended on the provision of an on-going subsidy which cannot be justified through some matching cost-savings have generally not survived.

3. The necessary expertise must be applied to ensure that appropriate markets are secured for any materials being recovered.

4. In order to become an acceptable secondary materials supplier a system must itself be stable. Irregular and undependable sources of supply will be relatively unattractive to purchasers. End-use markets will pay higher prices and be a more stable buyer when dealing with sources of supply that are stable.

5. Effective publicity and convenient and reliable service are the major factors in ensuring high levels of participation by the public. Site specific variations make it difficult to identify a constant curve, but it is generally true that operating costs drop, on a per unit basis, as participation rises. That is, the cost of collection per ton will be less at a 45 per cent participation level than at a 20 per cent level.

6. Where possible, existing resources should be used rather than replacing them entirely with a completely unique system. In some cases this may mean that a local operator or organization which is already involved in recovery program operation should be enlisted to help with the development of a larger or more comprehensive system. In most communities this means finding a creative way of involving small private operators and local volunteer groups in some aspect of the new system that is being developed.

According to the Resource Integration Systems (RIS) report, Halton has the potential of recovering 200,520 tons on recyclable materials annually.

RIS puts the primary target, or the amount the region should at-

Environment awards for Ontario weeklies

Environment Ontario participates in the Annual Award Contest of the Ontario Weekly Newspaper Association by giving prizes for news, feature stories or editorials which best deal with environmental subjects having impact upon the community served by the newspaper.

From the many entries submitted for the 1981 contest, Environment Ontario selected the following winners:

FIRST PRIZE:
THE CANADIAN CHAMPION — Milton
for a comprehensive feature by Jim Robinson on the recycling of waste by source separation. Mr. Robinson won the prize for the third consecutive time with a well researched and well written report dealing

frankly with all aspects of the issue. His article also contains a detailed analysis on the feasibility of starting and operating a large scale source separation and recycling project in his community.

SECOND PRIZE:
THE WITNESS — Bradford
for a series of features by Nancy Beasley thoroughly with all aspects of water pollution and water treatment, as it affects Bradford and the surrounding area.

Because of space limitations, only one article of the series can be reprinted in LEGACY. It deals with the quality of the drinking water in the community and has broad implications valid for the drinking water supply in Ontario in general.

tempt to recover at 124,531 tons. The remaining 75,989 tons can come later and is considered a secondary target. The 124,531 tons is to be glass, old newsprint, fine paper, and old corrugated paper only. This amount must be reached if the regional resource recovery plan is to succeed.

Broken down, it is hoped 11,261 tons would come from Milton; 62,304 tons from Burlington; 35,067 tons from Oakville, and 15,899 tons from Halton Hills.

In the first year of operation the Region should collect 1,096 tons

of materials. Broken down the targets are: old newsprint, 45 per cent, 5,227 tons; glass, 25 per cent, 2,023 tons; old corrugated cardboard, 20 per cent, 2,368 tons; and fine paper, 15 per cent, 1,478 tons.

Milton would be expected to produce 1,004 tons of the total 11,096 tons, broken down that would be 473 tons of old newsprint, 183 tons of glass, 214 tons of old corrugated cardboard, and 134 tons of fine paper.

At the end of three years the Region would be looking to collect

A short resource recovery history

Recycling or source separation are buzz words for a process of taking a used material and making it useable again.

There are several examples you can see around you. Old newspapers can be treated with flame resistant chemicals, shredded, and then blown in between walls as insulation.

Silver is a major component of photographic paper. The Champion's parent firm, Inland Publishing Co. Limited, recovers silver from photochemical solution so it can be used again.

The concept of wide public cooperation in what we can call pollution control and resource recovery probably began its first acceptance during the early 1940s in Britain. Lord Beaverbrook, the British Minister of Aircraft Production, appealed to British housewives to give their aluminium pots and pans to the government to be turned into aircraft parts.

These high profile salvage drives were on a large scale and represented a pure form of source separation; that is, a private citizen

separating a material in the home for recovery.

Public involvement went as far as people bringing in materials personally to central depots. In many ways they were similar to the depots many areas would love to set up again, and that includes Halton Region.

But after the war, the late '40s saw the secondary materials recovery sector move away from the public. Cheap labor made it easy for firms to send out their own people to collect waste and do up-grading.

This declined further in the '50s through an abundance of virgin material on the market and inexpensive (by today's standards) energy.

To quote the Resource Integrations Systems report, "The spirit of consumption was essentially unbounded, and the disposable society was 'beginning to grow.'" But concerned citizens in the late '50s and during the '60s began to notice the effects of using virgin material and discarding the waste — it was called pollution.

Volunteer groups, like the Mil-

ton District Boy Scouts, started to collect recyclable refuse. But the industrial users, though they wanted to appear to be as concerned as good corporate citizens, continually adjusted the price paid for secondary materials based on demand. If virgin material was cheap, they didn't want to talk with you.

"The focus on such efforts was financial, rather than environmental or related in some way to waste management needs from a municipal standpoint," the RIS report states.

It is not until 10 to 15 years ago that what we now consider resource recovery programs started. Stop Pollution In Nassagaweya (SPIN) is a local example of this. Such groups worked from a combined environmental and ecological base. They collected glass, metal, and newsprint in central depots, it was an effort to curb waste, point out the evils of land-filling and a sincere desire to encourage industry and commerce to use recyclable materials.

The period of the early and mid-'70s "were somewhat politi-

cal in nature," according to RIS. Business still operated on the supply and demand theories of the '50s. When the 1974-1975 pulp and paper strike came on stream there was a drastic drop in old newsprint. There just wasn't any lying around and many programs had simply disbanded.

"The spirit began in the late '60s and early '70s began to disappear, and the public generally lost interest, in large part due to the on-again, off-again nature of most programs," RIS states.

The 1973 energy crisis resulted somewhat later into a realization it would be more expensive to import virgin materials and it would be more expensive to purchase energy to reshape the virgin material. For instance, it takes one-tenth the amount of power to re-smelt aluminium from scrap than to turn it into aluminium from bauxite.

With more and more agitation for resource recovery many groups, including Halton Region, began discussions in the late '70s. That result is shown in the 1979 decision, and the confirmation ex-

pected today, that Halton Region wants to get into resource recovery and source separation.

New technology, which Halton Region is now studying, makes the separation of some materials by the municipality for sale to consuming industries financially possible.

In August of 1980, Ontario Environment Minister Dr. Harry Parrott announced provincial funding support for municipalities if they would get into resource recovery and he named Halton as the site of a pilot project.

On Nov. 14, 1980, Dr. Parrott attended a Halton Region-sponsored seminar on resource recovery and stated flatly he sees resource recovery and source separation as an Ontario and a personal top priority for the '80s.

Now that the political sector is committed, at least in Ontario, it seems the 1980s just may produce hitherto unprecedented advances in taking our by-products and making them work for us again. It is not an Orwellian society where "there is no waste" but it is, here in Halton Region, an admirable beginning.

22,256 tons of recyclables and would add wood and plastic of the total taken in.

Broken down the targets are: old newspaper, 75 per cent, 8,712 tons; glass, 45 per cent, 3,642 tons; old corrugated cardboard, 45 per cent, 5,330 tons; fine paper, 35 per cent, 3,448 tons; film plastic, 10 per cent, 496 tons; and wood, 15 per cent, 628 tons.

The 22,256 tons of recyclable represents 17.9 per cent of the regional waste target of 124,531 tons. Each 10 per cent increase after that would result in 4,200 tons being brought in.

Again the primary reason, as pointed out in the RIS report, for Halton going to source separation is stated in the following paragraph.

"It has become clear through discussion with municipal officials and a reading of documents published in Halton that diversion of waste away from landfill is seen by many to be the prime objective which should be met by recovery system design."

While private operators might have a role in the new system, public control is seen as essential so that from the waste management point of view, predictability is considered a prime key to success.

There is no use recovering a material if there is no market for it. You can recover all the "mumblepleg gears" but if no one wants them, your resource recovery plant winds up throwing them in the landfill area.

Therefore it is essential to begin with a market survey and identify the needs of purchasers and make a collection centre ready to convert recoverables to the specifications of the purchasers.

To that end RIS has listed the following three objectives.

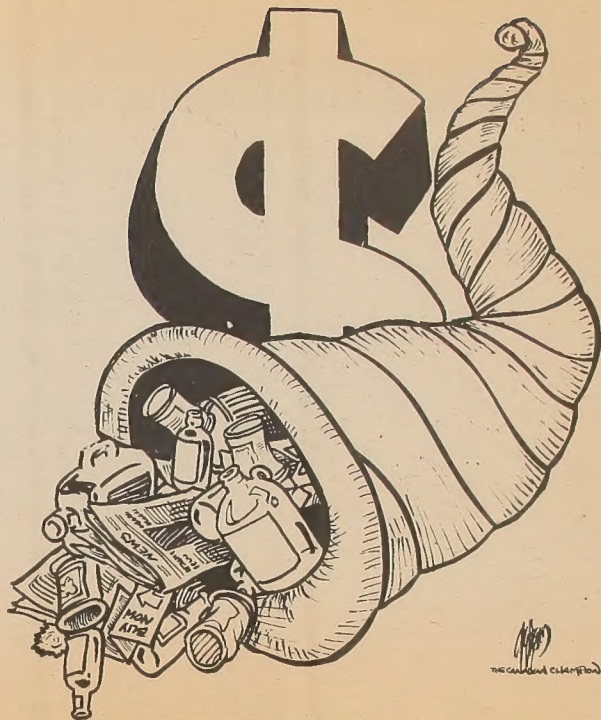
1. The recovery system developed for the Halton Region must recognize the importance of markets and market development, specific existing operations and general community support, and the benefits that can be realized through maximizing impact on current waste generation and disposal.

2. Any material recovery must be linked with realistic markets, and the system must be capable of delivering a high quality product, in line with industry standards. The recovery system should work closely with the various factors in the marketplace, and should follow a progressive market development status, ideally serving as a catalyst to spur new market demand.

3. Development in the Region should follow the new system design path, but with true consideration for and consultation with existing operators. While the achievement of maximum impact on waste generation and disposal should be the primary goal, in relation to protection of the status quo, the main design consideration should be the inclusion of existing operators in any new system that is proposed. The design process should be adjusted, as necessary, to maximize the involvement and support of all possible individuals and organizations within the community.

It is assumed Halton Region will want machinery which can convert raw waste into industrially accepted standard, it is therefore necessary to have efficient machinery and avoid all unnecessary overhead.

(continued on pg. 8)



Recycling groups must be encouraged

"The people who work to operate such programs, even though they do so in many cases in only a small part of a single municipality, know how to convince their neighbors that recycling is a worthwhile activity."

That is an excerpt from the Resource Integration Systems (RIS) report on a program of possible source separation for Halton. The firm makes a very strong case that the groups, mostly all volunteer, should not be squeezed out of the picture.

For those groups who have heard about Halton Region thinking about taking over the operation of paper drives, glass and metal collection drives, they can take heart from this further excerpt.

"The many community-based organizations that have worked over the past year to bring the word 'recycling' to Halton represent the spirit that is a necessary part at source recovery."

"Programs don't work unless local residents believe that they are good for the community and choose to actively participate by saving material for collection or delivering their recyclables to the neighborhood depot."

RIS urges the region to make the many groups involved now a part of the total team and that they not lose the financial edge of the operations they have supported.

So who collects recyclables in Milton and what do they bring in?

The most visible recycler in the urban area is the Milton District Boy Scouts. They operate a monthly paper drive from September to June for an average monthly collection of 16 tons. Picnics are made in the rural area, on request, for another five tons.

Using a collection of borrowed

trucks and private cars, the scouts also get a small amount of computer printout sheets and computer tab cards.

The paper drive is a primary source of revenue for the 70 troops and packs in the Milton District and they say they are not interested in being displaced by a new Halton recovery system.

Stop Pollution in Nassagaweya (SPIN) was one of the first recycling groups and operates out of Campbellville, Brookville and Eden Mills. The average monthly recovery is: three tons of newspaper; .5 tons of glass; and .1 ton of metal.

SPIN, according to RIS, is "interested mainly in seeing recovery accomplished" and would be "willing to withdraw if a larger new recovery system were being developed."

Burlington Paper Products (BPP) collects about three tons of fine paper per month from the Milton area and has recently started a recovery program in town hall.

Harold Morby is considered a scrap collector but his weekly and on-request collections result in an average of 42 tons of metal being recovered per month. He says he might get into newspaper recovery.

but intends to be primarily in metal recovery.

J.C. Waste Management is run by John Campbell and is involved in fine paper recovery through sources such as Guelph University and Peel Regional Headquarters. He will be part of a major new newspaper recovery program by Ontario Paper Limited.

When this is collected there are already a number of potential buyers out there. There are three area buyers of glass; two buyers of cans; 20 buyers for paper; 16 end users of waste paper; and eight cellulose insulation manufacturers who can use waste paper.

What we offer

Milton produces 3.43 pounds of waste per capita every day.

That figure is based on Milton having a population of 24,161 (last official census figures) producing 15,118 tons of all forms of waste during a year.

Significantly, this figure is much less than the 5.64 pounds of waste per capita per day produced in Oakville and 4.60 pounds of waste per capita per day in Burlington.

Nevertheless, Milton can make a contribution on any waste disposal plan which may produce remarkable products through source separation.

Milton produces a total of 8,798 tons of residential waste per year, and 6,320 tons of commercial-industrial waste per year. The total for Halton Region is about 200,520 tons. Of that total about 11,617 tons represent just old newspaper,

or more than all the residential waste produced by Milton.

Where does Milton stand in terms of handling garbage now?

The amount of waste in Milton has been rising yearly. It was 5,275 tons in 1978; 6,618 tons in 1979; and 4,891 tons for the first eight months of 1980 heading towards a new record.

The Town of Milton collects garbage from the residential sector, most businesses and 50 per cent of the industrial concerns in the town. The town has two rear-loader dump trucks, each with a three-man crew and an additional driver can be added when required. Rural collection is mostly contracted to private collectors.

The cost for garbage collection in 1979 was \$110.313 and the cost for 1980 is expected to have been \$119,000.

To this cost is added the time and expense of taking all waste to the landfill site in Burlington. The distance is 20 miles and a round trip takes about one hour and 15 minutes. Each truck makes eight trips in a five day week.

Assuming a resource recovery rate of waste could be held at 25 per cent it means two less trips per week to the garbage dump and it would save about \$35,000 on the annual cost of garbage collection and disposal.

This does not include the \$13.50 per ton tipping fee.

For each ton of waste Milton brings to the Burlington dump, Milton was paying \$13.50 per ton for the right to dump it. Tipping fees cover the regional cost of operation of landfill sites.

If Milton cut back 15 per cent or 2,000 tons, the saving in tipping fees would be \$27,000.

What's really in our drinking water?

Reprinted from The Witness, Bradford, July 8, 1981

By Nancy Beasley

Mmmm! There's nothing like a tall, cool glass of ice water to quench your thirst on a very hot, summer day.

Or is there?

With all the testing of area water supplies taking place, serious questions have been raised about the threat of industrial chemicals and pesticides infiltrating well water.

You're probably asking yourself "What, exactly, am I drinking?" "Should I drink the water in my town?"

Despite recent controversy over suspected water contaminants in the Stouffville or Holland Marsh areas, various sources maintain that neither water source is anything but good to drink.

"There isn't a bit of cause for concern in Stouffville," said Glen Longhurst, superintendent of area one water works in York Region. "There's nothing getting into the potable (drinking) water supply."

He said ministry of environment (MOE) tests have all shown low levels of minerals and, as far as he is aware, no chemical contaminants.

Mr. Longhurst's office is responsible for collecting, purifying, and storing the water for Newmarket, Kleinburg, Nobleton, Schomberg, King City, Oak Ridges, Stouffville, Holland Landing, Sharon, Mount Albert, Sutton, and Aurora.

"As a matter of fact, in the last few years the water is better than it used to be," he said. "The majority of people who lived around here

before 1971 have said the water is improved."

In 1971 the Regional Municipality of York was formed, transferring the duties of collecting, purifying, and storing water from the individual towns to trained personnel hired by the regional government.

So, what do regional employees do to the water to make it drinkable?

Mr. Longhurst said the town of Sutton has the only purification plant in the area, because the water is drawn directly out of Lake Simcoe.

There, chlorine, fluoride, and aluminum sulphate are put in the town's water.

He explained chlorine is added to disinfect the water and get rid of bacteria, fluoride is for tooth cavity prevention, and aluminum sulphate is used to coagulate sediment in the water.

Our town's water supplies have chlorine and sodium silicate added — the latter is used to control iron levels in the water.

Some water in Kleinburg, Oak Ridges, and one well in Newmarket, have the iron completely removed, Mr. Longhurst explained.

"Our wells are all at least 350-ft. deep," the superintendent said. "Nothing penetrates into the aquifers."

Aquifers are the underground water sources from which deep wells draw water.

"Shallow wells are the ones more likely to get contaminated from pesticides and sewage," he said.

Is Mr. Longhurst worried about the water he drinks?

Not a bit," he said.

But there appear to be some concerns among residents in this area. He admitted he has had some calls from people who are worried about their drinking water.

Others may not have called, but increased sales of distilled bottled water in Stouffville and Oak Ridges indicates people are, in fact, concerned about their water.

Joanne Sinkely, pharmacy assistant at Doane Hall Pharmacy in Oak Ridges, said the number of bottles of distilled water that store sells has increased markedly.

"We used to sell maybe eight bottles a week," she said. "It's increased by about 15 bottles a week."

"People don't like drinking it (well-supplied water). They say it smells like rotten eggs."

A cashier at Beverley Acres Pharmacy in Richmond Hill said she is also selling more distilled water, about 16 more bottles each month.

"One man said he refuses to drink the water," Debbie Barber said.

It would appear people are as divided about their thoughts on drinking York Region water, as are the publicized reports saying the water is good, or isn't good, to drink.

Yet, in Newmarket and Bradford, both areas involved in a recent study of birth anomalies and stillbirths, people don't appear to be as concerned about their water problems.

The study was prompted by two area doctors' concerns in 1978 after they began to see more birth

anomalies than they thought was acceptable.

York Regional and Simcoe County water which originates in the Holland Marsh, has recently come under attack because of the large quantities of pesticides being used on the farmland.

Dr. David Korn, medical officer for Simcoe County, asked the MOE to test the two municipal Bradford wells because, "Regardless of what the study shows (on birth anomalies and stillbirths), people are going to ask about toxic substances in the water."

"We want to be able to answer the question for ourselves, as well as for the public."

According to Terry O'Neill, central region pesticides officer for the MOE, not all of the tests are complete, some taking longer than others.

"I've only got some results verbally," Mr. O'Neill explained. "I've been told organochlorine insecticide scans haven't detected anything."

He said the tests are expected to be completed by this Friday (July 3).

Mr. O'Neill said he has received only one call from an area resident expressing concern about a well.

Larry Fry called because the community well in Ansonville was tested in 1979, after the resident expressed concern about pesticides getting into the water supply, Mr. O'Neill explained.

"It's very likely we'll test it again," he said. "But deep wells aren't affected by surface spraying."

According to Don Gibson, of-

fice manager for Bradford's Public Utilities Commission, both Bradford wells are also deep wells, about 350-ft. deep.

As for other concerns in the Bradford area, Neil Embree, district officer of the central region for the MOE, said he hasn't heard of any calls coming in to his Barrie office.

"I would think, if there were calls, I would have heard by now," he explained.

Other signs that people aren't too worried about pesticides in their water, or about the link between pesticides and birth anomalies reported in other newspapers, is the fact that distilled and bottled water sales apparently haven't increased, either in Newmarket or in Bradford.

An employee of Newmarket Drug Mart said the store hasn't had any noticeable increase in distilled water sales and the manager of Bradford's Super X Drugs hasn't noticed an increase in sales in her store.

As for the special water tests, in both Holland Marsh and Stouffville areas, they will continue throughout the summer, with regular tests on drinking water supplies carried out on a weekly or bi-weekly schedule, depending on the town.

As yet, according to MOE spokesmen, there is no evidence warranting the kind of concern which has been generated in either area.

So go ahead and enjoy that tall, cool glass of ice water, because H₂O (water) is apparently all you'll be getting.

Source separation: (continued from pg. 7)

In Milton the estimated maximum newspaper processing capacity in the early years would be about 1,000 pounds per hour based on an annual newspaper recovery of 800 tons and a 40-hour week. A system on this scale would incur costs of \$30 to \$50 per ton to shred and bale. As the purchase price is about \$50 to \$55 and it might take \$5 to \$10 in gasoline to get the paper to purchase the system in Milton has the potential to lose money.

Therefore it has been suggested there be a Halton Regional Resource Recovery Centre, perhaps on the grounds of the Regional headquarters as it is central. This centre would have high-speed machinery and would have a minimum of staff (overhead). This same facility would also provide centralized marketing services, assistance with publicity and educational program development and technical expertise. It would also mean the collection function would be removed from local direction and control and this has shown to have worked in other areas.

Therefore the suggested division of responsibilities would be with the area municipality like Milton being in charge of direct supply development, collection, direct promotion, and the transfer to the regional centre.

Halton Region would be in

charge of indirect supply, handling and processing, backup and indirect promotion, marketing, technical assistance, and resource and development. In short, the Region would be in charge of those areas which are most effectively centralized.

Realizing collection of separated materials is the key and half the groups in Halton state they will not give up their own actions such as the Milton District Boy Scouts, three questions must be answered:

1. Should operations be public or should they be contracted out to a private organization?
2. Should participation be voluntary or should the municipalities enact bylaws forcing mandatory involvement by local residents?
3. Where should the Regional facility be located and what local transfer operations will be required?

According to RIS it appears private operation functioning under a sufficient degree of municipal control.

Secondly, RIS Senior Consultant, Jack McGinnis has stated the best method he sees of who runs what is to allow the system to start on a voluntary basis and then make it mandatory once the system gains acceptable public participation levels. This initial voluntary phase will count on door-to-door grass roots encouragement along with

extensive local newspaper support which The Champion will be glad to give.

Thirdly, as already stated, the best site for the resource recovery centre will probably be beside the Regional Headquarters building but this is not an RIS suggestion. RIS said only it should be close to Queen Elizabeth Way and between Oakville and Burlington.

As for transfer stations, they should be located close to population centres with highway access to the regional centre. Utilizing landfill sites is one suggestion.

It is also recommended the regional centre operate on a cost-plus basis. That is the margin between the prices paid to the local feeders and the income received through regional sales to purchasers should be set so the margin covers all operating costs of the centre and perhaps makes a small profit. The centre should also manage and credit transactions.

Once local feeders are set up with the four core materials, in what areas should they concentrate to get supply?

Newspaper: most recovery would be from homes but further sources could be newspapers like The Champion, office buildings and institutions like Milton District Hospital.

Glass: This would come mainly from homes but contacts could be

made with hotels, restaurants, taverns and even bottling companies.

Old Corrugated Cardboard: Recovery could come from many sources such as department stores and groceries.

Fine Paper: The primary source would be from office buildings, printing and publishing operations and other institutions like schools.

To get this massive plan off the ground and to the attention of the public it is proposed the first step should be the production of a high-quality brochure which would be delivered to every home, office, and apartment in Halton. It would not be simplistic but should contain a precise explanation of the objective of the program and the benefits it can bring to the community.

The brochure or printed piece would stress that collection is at the curbside and is done weekly at the set time on collection day.

The bottom line is the decision to start. Once this decision is made it will be necessary to define the structure and responsibilities. Then it must be decided what type of operation should develop and which materials are to be recovered.

This is the stage when a full description of the system and the technical components at each level plus who will be assigned what responsibility must be fitted into the total operation.

This must be followed by a fi-

nancial plan matching the operating schedule and describing all budget projections and revenue targets.

It might be wise to launch the program in one small area of the region first and then expand it if the demonstration effort works.

There should also be a research and development end as RIS has stated several times "the state of the art is still developing and Halton Region can potentially play an important role in furthering this development." Such research might involve better resource processing machines and the development might be a better method of curbside collection.

In the proper balance, it seems the technology and methods which have proved workable in other jurisdictions can provide Halton with a good start at being one of the first municipal source separation operators.

It will be necessary to pick out the good points of other jurisdictions and not repeat what appear to be the shortcomings.

In many ways, source separation marks a breakaway. It is a breakaway from landfilling. It is a breakaway in terms of scope and approach. It is a breakaway in terms of potential to develop new state of the art techniques.

Mot of all, it is a chance to breakaway from the senseless disposal of valuable materials which can and should be utilized again and again.